

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-18 are presented in the present application. Claims 19-32 are canceled without prejudice and Claims 1, 2, 12, and 15 are amended by the present amendment. The amendment to Claims 1, 2, and 12 finds support in Figures 6A-D and in the specification at page 1, lines 14-21 and at page 3, lines 18-22. The amendment to Claim 15 corrects a grammatical error. No new matter has been added.

In the outstanding Office Action, Claims 20-24 and 30-32 were objected to; the reissue oath/declaration was objected to; Claims 1-32 were rejected as being based upon a defective reissue declaration under 35 U.S.C. § 251; Claims 1-32 were rejected under 35 U.S.C. § 251 as being broadened in a reissue application filed outside of the two year statutory period; Claims 2-13 and 19-28 were rejected under 35 U.S.C. § 112, second paragraph; and Claims 1, 2, and 12 were rejected under 35 U.S.C. § 102(b) as anticipated by Komori et al. (U.S. Patent No. 5,141,882, herein "Komori").

Regarding the objection to Claims 20-24 and 30-32, these claims have been canceled without prejudice. Accordingly, it is respectfully requested this objection be withdrawn.

Regarding the rejection of reissue oath/declaration as being defective, Applicants respectfully traverse this rejection for the following reasons. The outstanding Office Action indicates that it is improper to state in the reissue oath/declaration that the error for justifying filing of this reissue application was failing to submit Claim 19, as Claim 19 was not part of the issued patent.

Applicants respectfully submit that the reissue oath/declaration filed in this application states that the at least one error upon which the reissue application is filed is "failure to submit Claim 19 in which the redundant recitation of 'uniform' stated in Claims 2-

3 is omitted.” Therefore, the originally filed reissue oath/declaration does not simply state, as asserted by the outstanding Office Action, that the error is failing to submit Claim 19 but explains that the feature “uniform” stated in original Claims 2 and 3 is omitted in Claim 19.

In this respect, Applicants note that MPEP § 1402 states that the “most common bases for filing a reissue application are: (A) the claims are too narrow or too broad ...” and MPEP § 1414 II(C) states that “[a]ny error in the claims must be identified by reference to the specific claim(s) and the specific claim language wherein lies the error.” As discussed above, the originally filed oath/declaration indicates that the word “uniform” in Claims 2 and 3, was in error and thus, the reissue oath/declaration complies with the patent rules and is not defective.

Accordingly, it is respectfully requested this rejection of the reissue oath/declaration be withdrawn. Based on the same rationale, it is respectfully requested that the rejection of Claims 1-32 based on the defective reissue oath/declaration under 35 U.S.C. § 251 also be withdrawn.

Claims 1-32 were rejected under 35 U.S.C. § 251 as being broadened in a reissue application because new Claims 19, 26, 28, and 29 are broader than the original claims. In view of this rejection, Claims 19-32 are canceled without prejudice. Accordingly, it is respectfully requested this rejection be withdrawn.

Regarding the rejection of Claims 2-13 and 19-28 under 35 U.S.C. § 112, second paragraph, these claims have been amended to delete the rejected language “may be uniform.” Support for these claim amendments is found in column 5, lines 53-60 of the patent. No new matter has been added. Accordingly, it is respectfully submitted this rejection be withdrawn.

In light of the rejection of Claims 1, 2, and 12 under 35 U.S.C. § 102(b) as anticipated by Komori, independent Claims 1, 2, and 12 have been amended to recite that irradiating

impurity ions is performed to form a junction structure including a vertical junction group where a first conductive-type region and a second conductive-type region are alternatively arranged vertically to a surface of the semiconductor substrate. As noted above, support for these claim amendments is found in the specification at page 1, lines 14-21 and at page 3, lines 18-22.

Briefly recapitulating, amended Claim 1 is directed to a semiconductor device manufacturing method of forming a second conductivity-type region by irradiating impurity ions onto a first conductivity-type semiconductor substrate. The irradiating impurity ions are performed to form a junction structure including a vertical junction group where a first conductivity-type region and the second conductivity-type region are alternately arranged vertically to a surface of the semiconductor substrate. The impurity ion irradiated region is restricted by a shield mask intercepting the impurity ions and the impurity ion energy is controlled to provide a uniform impurity distribution in the direction of irradiation in the second conductivity-type region. Independent Claims 2 and 12, which are different than Claim 1, have been amended similar to independent Claim 1.

Thus, the claimed methods advantageously achieve a superjunction, as disclosed at column 1, lines 16-22, by not repeatedly using epitaxial growth and ion implantation.

Turning to the applied art, Komori discloses a semiconductor field effect device in which, as shown in Figure 1E, various ions are irradiated into a substrate 1, which is a p-type substrate, to form an n-type region 5. Komori forms only a single n-type region 5.

However, Komori does not teach or suggest that irradiating impurity ions is performed to form a junction structure including a vertical junction group where a first conductivity-type region and a second conductivity-type region are alternatively arranged vertically to a surface of a semiconductor substrate, as required by amended Claims 1, 2, and 12. In other words, Komori does not teach or suggest forming the first and second

conductivity-type regions alternately arranged in a vertical direction from the surface of the semiconductor substrate.

Accordingly, it is respectfully submitted that independent Claims 1, 2, and 12 and each of the claims depending therefrom patentably distinguish over Komori.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to this effect is respectfully requested.

Respectfully submitted,

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